

Name_____

Chemistry I: Gas Law Problems

Period_____ Date_____

Combined Gas Law Problems **3**

SHOW ALL WORK for credit!!

1. A gas has a volume of 800.0 mL at $-23.00\text{ }^{\circ}\text{C}$ and 300.0 torr. What would the volume of the gas be at $227.0\text{ }^{\circ}\text{C}$ and 600.0 torr of pressure?
2. 500.0 liters of a gas are prepared at 700.0 mmHg and $200.0\text{ }^{\circ}\text{C}$. The gas is placed into a tank under high pressure. When the tank cools to $20.0\text{ }^{\circ}\text{C}$, the pressure of the gas is 30.0 atm. What is the volume of the gas?
3. What is the final volume of a 400.0 mL gas sample that is subjected to a temperature change from $22.0\text{ }^{\circ}\text{C}$ to $30.0\text{ }^{\circ}\text{C}$ and a pressure change from 760.0 mmHg to 360.0 mmHg?
4. What is the volume of gas at 2.0 atm and 200.0 K if its original volume was 300.0 L at 0.250 atm and 400.0 K?
5. At conditions of 785.0 torr of pressure and $15.0\text{ }^{\circ}\text{C}$ temperature, a gas occupies a volume of 45.5 mL. What will be the volume of the same gas at 745.0 torr and $30.0\text{ }^{\circ}\text{C}$?

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6. A gas occupies a volume of 34.2 mL at a temperature of 15.0 °C and a pressure of 800.0 torr. What will be the volume of this gas at standard conditions?

7. The volume of a gas originally at standard temperature and pressure was recorded as 488.8 mL. What volume would the same gas occupy when subjected to a pressure of 100.0 atm and temperature of -245.0 °C?

8. A gas occupies 900.0 mL at a temperature of 27.0 °C. Under constant pressure, what is the volume at 132.0 °C?

9. A gas syringe contains 42.3 milliliters of a gas at 98.15 °C. With pressure remaining constant, determine the volume that the gas will occupy if the temperature is decreased to -18.50 °C.